

CLAIMS

1. A face metadata generating method (12) of generating metadata related to face information of an image, said face metadata generating method comprising:

a step (121) of clipping a plurality of different local areas of said image;

a step (122) of extracting frequency features for the respective local areas; and

a step (123) of projecting feature vectors, which are vectors consisting of said frequency features, onto predefined subspaces;

thereby extracting the projected feature vectors of the respective local areas so as to generate the projected feature vectors as face metadata.

2. The face metadata generating method according to claim 1, wherein power spectral intensities of Fourier frequencies obtained by discrete Fourier transform are extracted as said frequency features.

3. The face metadata generating method according to claim 1, wherein expansion coefficients obtained by discrete cosine transform are extracted as said frequency features.

4. The face metadata generating method according to claim 1, wherein expansion coefficients obtained by discrete sine transform are extracted as said frequency features.

5. The face metadata generating method according to claim 1, wherein said subspaces are specified by basis vectors previously obtained by principal component analysis for frequency features, and frequency feature vectors are projected onto the specified subspaces to calculate principal component vectors.

6. The face metadata generating method according to claim 1, wherein said subspaces are specified by basis vectors previously obtained by independent component analysis for frequency features, and frequency feature

vectors are projected onto the specified subspaces to calculate feature vectors.

7. The face metadata generating method according to claim 1, wherein said subspaces are specified by basis vectors previously obtained by discriminant analysis for frequency features, and frequency feature vectors are projected onto the specified subspaces to calculate feature vectors.

8. The face metadata generating method according to claim 1, wherein area positions corresponding to the respective local areas are searched as said local areas in said image, clipping positions are obtained, and after that, the local areas are clipped.

9. A face metadata generating unit (12) of generating metadata related to face information of an image, said face metadata generating unit comprising at least:

area clipping means (121) for clipping local areas of said image;

frequency feature extracting means (122) for extracting frequency features for the areas clipped by said area clipping means; and

vector projection means (123) for projecting feature vectors, which are vectors consisting of the frequency features extracted by said frequency feature extracting means, onto predefined subspaces;

thereby extracting the projected feature vectors of a plurality of different local areas so as to generate the projected feature vectors as face metadata.

10. The face metadata generating unit according to claim 9, wherein said frequency feature extracting means (122) extracts power spectral intensities of Fourier frequencies, obtained by discrete Fourier transform, as frequency features.

11. The face metadata generating unit according to claim 9, wherein said frequency feature extracting means (122) extracts expansion coefficients, obtained by discrete cosine transform, as frequency features.

12. The face metadata generating unit according to claim 9, wherein said frequency feature extracting means (122) extracts expansion coefficients, obtained by discrete sine transform, as frequency features.

13. The face metadata generating unit according to claim 9, wherein said vector projection means (123) projects frequency feature vectors onto subspaces specified by basis vectors, which are previously obtained by principal component analysis for the frequency features, to calculate principal component vectors.

14. The face metadata generating unit according to claim 9, wherein said vector projection means (123) projects frequency feature vectors onto subspaces specified by basis vectors, which are previously obtained by independent component analysis for the frequency features, to calculate the feature vectors.

15. The face metadata generating unit according to claim 9, wherein said vector projection means (123) projects frequency feature vectors onto subspaces specified by basis vectors, which are previously obtained by discriminant analysis for the frequency features, to calculate the feature vectors.

16. The face metadata generating unit according to claim 9, wherein said area clipping means (121) searches for area positions corresponding to the respective local areas in said image to obtain clipping positions, and then clips the local areas.

17. A program making a computer generate metadata related to face information of an image, said program making said computer realize:

a function (121) for clipping a plurality of different local areas of said image;

a function (122) for extracting frequency features for the respective local areas; and

a function (123) for projecting feature vectors, which are vectors

consisting of said frequency features, onto predefined subspaces,

thereby making said computer extract the projected feature vectors of the respective local areas and generate the projected feature vectors as face metadata.

18. A face image matching system comprising a face image input unit (11) for inputting a face image, a face metadata generating unit (12) for generating face metadata from an inputted face image, a face metadata storage unit (13) for storing generated face metadata therein, a face similarity calculating unit (14) for calculating a similarity of a face from said face metadata, a face image database (15) for storing said face images, a controller (16) for controlling, in response to a registration request and a retrieval request of the image, input of the image, generation of the metadata, storing of the metadata, and calculation of face similarity, and a display unit (17) for displaying the face image and other information, wherein said face metadata generating unit (12) comprises:

area clipping means (121) for clipping local areas of said face image;

frequency feature extracting means (122) for extracting frequency features for the areas clipped by said area clipping means; and

vector projection means (123) for projecting feature vectors, which are vectors consisting of the frequency features extracted by said frequency feature extracting means, onto predefined subspaces.